CAPTURE-HD

Capture HD® High-Definition Capture Recorder

- *Delivers a low-cost, high-performance HD presentation capture solution*
- *Designed for college, university, teaching hospital, government, and business applications*
- *Records the complete AV presentation, classroom lecture, or training session*
- *Captures in high-quality H.264 format at up to HD 1080p resolution*
- *Allows live streaming of HD video and audio over an IP network*
- *Extremely easy to use and flexible enough to fit any workflow model*
- *Works with Crestron® Fusion RV® software for a total workflow engine [1]*
- *Integrates easily into existing AV presentation systems and networks*
- *Provides inputs for high-definition digital and analog AV sources*
- *Built-in scaling ensures compatibility with a full range of sources*
- *Provides a composite video input for the presenter's camera*
- *CAPTURE-HD-PRO model includes high-definition 3G-SDI camera input*
- *Includes local AV output for confidence monitoring or presentation pass-thru*
- *Allows Crestron control system integration via Ethernet*
- *Gigabit Ethernet enables high transfer rates for uploading of HD media files*
- *Easy out-of-the-box setup*
- *Single-space 19" rack-mountable*

The CaptureLiveHD™ system from Crestron® answers the call for a high-quality meeting and lecture capture solution that's simple enough for the entire faculty to use, and affordable enough for wide-scale deployment across any sized campus or corporate enterprise. CaptureLiveHD delivers a complete end-to-end solution for scheduling, recording, and online delivery of captured content at the lowest cost of ownership on the market. Flexible enough to fit any education, government, medical or corporate work-flow model, CaptureLiveHD translates to greater usage of resources and a more effective education experience while minimizing support overhead.

As part of a complete CaptureLiveHD system, the Capture HD High-Definition Capture Recorder (CAPTURE-HD) provides a very simple, one-box component for capturing lectures, AV presentations, medical procedures, seminars, and training sessions. It is designed for easy integration in a classroom, lecture hall, training lab, or boardroom. It allows presenters and instructors to use their choice of multimedia sources, including high-definition videos, computers, whiteboards, and annotators. The CAPTURE-HD base model provides HDMI® and RGBHV inputs for such sources, plus a composite video input for a camera and line-level audio input for a wireless mic. The CAPTURE-HD-PRO model adds a 3G-SDI input to support HD digital cameras.

Without requiring any special training or extra effort from the presenter, the CAPTURE-HD records the complete presentation in full-motion HD 1080p or 720p and uploads it to a network server for publishing. It can also stream live video to a touch screen, computer, mobile device, DigitalMedia™ system, or third-party streaming media system. Schools and businesses may easily implement a facility-wide media capture solution by equipping every room with CAPTURE-HD recorders, all centrally managed by Crestron Fusion RV® Remote Asset Management Software[1].

A Closer Look at the Box

The CAPTURE-HD recorder is a compact unit, designed to sit on a shelf or mount in an equipment rack or podium. It captures presentation content from a computer or other source along with a live camera image and records them together in full-motion HD. The two images may be composited on screen side-by-side or picture-in-picture (PIP). The camera PIP window can be sized and positioned in any corner of the screen over the presentation content. Either image may be captured full screen as well.

Audio content from the presentation source is captured in stereo along with the live "speech" signal from a wireless microphone. The two signals are mixed together and recorded as one high-quality stereo signal.

Additional Features:

- **Front Panel —** Intuitive controls are provided on the front panel for starting, pausing, and stopping a recording. Each button lights up in a different color to provide clear indication of recording status. An LED bargraph meter provides indication of the speech signal level so you'll know that you're being picked up loud and clear. A full-color LCD screen displays additional feedback and provides access to setup functions.
- **Content Inputs —** Connecting a computer, DVD player, or other presentation source is enabled via HDMI® and RGBHV inputs on the rear panel. The HDMI input handles high-definition digital AV devices and computers with stereo audio. The RGBHV input handles analog computer sources. Built-in scaling ensures compatibility with a full range of signals. A stereo analog audio input is also provided.
- **Camera Input —** A composite video input provides for the connection of a single camera. Crestron offers two cameras ideally suited for the application, the CAM-IFB-100 and CAM-IPTZ-101[2]. A 3G-SDI input (CAPTURE-HD-PRO model only) is also offered, allowing for the use of a high-definition camera with SDI, HD-SDI, or 3G-SDI output.
- **Speech Input —** A wireless microphone or mic mixer can be connected for pickup of the presenter and other individuals speaking. Crestron FreeSpeech® wireless microphones (MP-FS100_PAK or MP-FS200_PAK[2]) offer an ideal speech pickup solution.

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CAPTURE-HD – Rear View

CAPTURE-HD-PRO – Rear View

- **Local Output —** HDMI and analog audio outputs are included for connection to a confidence monitor or AV system. These outputs may be used to view and hear exactly what is being recorded, or to pass the selected content source through for local presentation.
- **File Storage —** Captured AV files are stored locally on a memory card or USB hard drive prior to uploading to the network. A memory card slot and USB port are provided on the rear panel, and a 16 GB SDHC™ memory card is included. An additional USB port is provided on the front panel, allowing recordings to be saved directly to a portable USB hard drive.[3]
- **Live Streaming —** As an alternative to capturing video, the CAPTURE-HD can also be used to stream live HD video and audio to a computer, mobile device, touch screen, DigitalMedia system, or third-party streaming media system. The CAPTURE-HD supports both unicast and multicast, with or without RTSP (Real Time Streaming Protocol). Streaming connections can be configured to stream directly to one or more specific IP addresses, or to use RTSP to manage the configuration of multiple connections automatically.
- **Gigabit Ethernet —** Connection to the LAN is via 1000Base-T Ethernet, affording the highest possible transfer rate for uploading HD media files to your network server or streaming live video.

Touch Screen Remote

Adding the optional touch screen controller (CAPTURE-TPMC-4SM[2]) enables simplified operation of the CAPTURE-HD from a lectern, desk, or wall mount location in the room. The presenter need only follow the prompts on the touch screen to easily start and stop a recording, pause or mute the recording and even add bookmarks[4] during the session. The touch screen can also display a live view of the room camera and a microphone level meter to lend an extra level of confidence during operation.

Control System Integration

The CAPTURE-HD integrates seamlessly with a Crestron control system to enable expanded control over AV and room devices using a variety of touch screens, wireless remotes, computers, and mobile devices.

SPECIFICATIONS

Capture & Streaming

Video Recording Formats: H.264 high profile @ 720p24, 720p30, 720p60, 1080p24, and 1080p30
Video Recording Bitrates: 500 to 6000 kbps
Video Streaming Formats: H.264 high profile @ 720p10, 720p15, 720p30, 720p60, 1080p10, 1080p15, and 1080p30
Video Streaming Bitrates: 500 to 6000 kbps
Audio Format: AAC stereo
Container: MPEG-2 transport stream (.ts), MPEG-4 Part 14 (.mp4)
File Transfer Protocols: FTP, SFTP, SCP
Streaming Protocols: RTP, RTSP, SDP
Session Initiation Modes: By receiver (unicast), by transmitter (unicast), multicast via RTSP, multicast via UDP

Storage

Memory Card: Supports SD™ and SDHC™ memory cards, 16 GB SDHC™ card included
USB: Supports USB hard drives[3]
Network: Supports file transfer to network media server

Video

Scaling: VXP® video processing, 3D and 2D noise reduction, block artifact reduction, mosquito noise reduction, motion and edge adaptive deinterlacing, detail enhancement, adaptive contrast enhancement, adaptive de-banding, film cadence detection, picture-in-picture and side-by-side windowing
Input Signal Types (Content): HDMI®, DisplayPort Multimode[5], DVI[5], RGB
Input Signal Types (Camera): composite, 3G-SDI[6]
Output Signal Types: HDMI, DVI[5]
Input Formats: HDMI, DVI[5], RGBHV up to UXGA/WUXGA, HD up to 1080p60, NTSC or PAL, SD-SDI (SMPTE 259M)[6], HD-SDI (SMPTE 292M)[6], 3G-SDI (SMPTE 424M)[6]
Input Resolutions, HDMI, Progressive: Any resolution and frame rate from 640x400 to 1920x1200 up to 162 MHz pixel clock
Input Resolutions, HDMI, Interlaced: 480i, 576i, 1080i25 (1125 lines), 1080i30

Input Resolutions, RGB, Progressive: Any resolution and frame rate from 640x400 to 1920x1200 up to 162 MHz pixel clock
Input Resolutions, Composite: 480i, 576i
Input Resolutions, 3G-SDI[6]:
SMPTE 425M (3G-SDI) 4:2:2 Colorspace: 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60);
SMPTE 425M (3G-SDI) 4:4:4 Colorspace: 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1920x1080@24Hz (1080p24), 1920x1080@25Hz (1080p25), 1920x1080@30Hz (1080p30), 1920x1080@50Hz (1080i50 or 1080sF25), 1920x1080@60Hz (1080i60 or 1080sF30);
SMPTE 260M (HD-SDI): 1920x1035@60Hz (1035i60);
SMPTE 295M (HD-SDI): 1920x1080@50Hz (1080i50);
SMPTE 274M (HD-SDI): 1920x1080@24Hz (1080p24), 1920x1080@24Hz (1080sF24), 1920x1080@25Hz (1080p25), 1920x1080@30Hz (1080p30), 1920x1080@50Hz (1080i50 or 1080sF25), 1920x1080@60Hz (1080i60 or 1080sF30);
SMPTE 296M (HD-SDI): 1280x720@50Hz (720p50), 1280x720@60Hz (720p60);
SMPTE 259M-C (SD-SDI): 720x480@59.94 (NTSC), 720x576@50i (PAL)
Output Resolutions, HDMI: Same as CONTENT input (HDMI or RGBHV) when viewing the selected content source, or same as capture settings when viewing the capture image
A-D Conversion: 10-bit 162 MHz per each of 3 channels

Audio

Processing: Provides mixing of the stereo CONTENT audio signals with the mono SPEECH signal
A-D/D-A Conversion: 24-bit 48 kHz
Input Signal Types: HDMI, DisplayPort Multimode[5], analog stereo, analog mono
Output Signal Types: HDMI, analog stereo
Formats, HDMI: 2ch PCM
Formats, Analog: Stereo 2-channel
Content Input Compensation: ±10.0 dB
Content Mix Level: -80.0 to 0.0 dB
Content Bass: ±15.0 dB
Content Treble: ±15.0 dB
Content Audio Delay: 0.0 to 40.0 ms
Speech Input Compensation: ±10.0 dB
Speech Mix Level: -80.0 to 0.0 dB
Speech Bass: ±15.0 dB
Speech Treble: ±15.0 dB
Output Volume[7]: -80 to +20 dB, adjustable from 0% to 100%, plus mute
Output Bass[7]: ±15.0 dB
Output Treble[7]: ±15.0 dB
Performance (analog):
Frequency Response: 20Hz to 20kHz ±0.75dB typical;
S/N Ratio: >90dB, 20Hz to 20kHz A-weighted;
THD+N: <0.05% @ 1kHz;
Stereo Separation: >90dB

Communications

Ethernet: 10/100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP
USB: USB 2.0 host, supports USB hard drives[3]

Connectors

SPEECH IN (Unbalanced): (1) RCA female;
Unbalanced line-level audio input;
Input Impedance: 10k Ohms nominal;
Input Level: 2 Vrms maximum

SPEECH IN (Balanced): (1) 3-pin 3.5mm detachable terminal block;
Balanced/unbalanced line-level audio input;
Input Impedance: 17.5k Ohms nominal balanced/unbalanced;
Balanced Input Level: 4 Vrms maximum;
Unbalanced Input Level: 2 Vrms maximum

CONTENT AUDIO IN (Unbalanced): (1) 3.5mm TRS mini phone jack;
Unbalanced stereo line-level audio input;
Input Impedance: 18.5k Ohms nominal;
Input Level: 1 Vrms maximum

CONTENT AUDIO IN (Balanced): (1) 5-pin 3.5mm detachable terminal block;
Balanced/unbalanced stereo line-level audio input;
Input Impedance: 24k Ohms nominal balanced/unbalanced;
Balanced Input Level: 4 Vrms maximum;
Unbalanced Input Level: 2 Vrms maximum

AUDIO OUT L, R (Unbalanced): (2) RCA female;
Unbalanced stereo line-level audio output;
Output Impedance: 100 Ohms nominal;
Output Level: 2 Vrms maximum

AUDIO OUT (Balanced): (1) 5-pin 3.5mm detachable terminal block;
Balanced/unbalanced stereo line-level audio output;
Output Impedance: 200 Ohms balanced, 100 Ohms unbalanced;
Balanced Output Level: 4 Vrms maximum;
Unbalanced Output Level: 2 Vrms maximum

CAMERA IN, COMPOSITE: (1) BNC female analog composite video input;
RCA adapter included;
Input Impedance: 75 Ohms nominal;
Input Level: 1 Vp-p nominal

CAMERA IN, 3G-SDI[6]: (1) BNC female, SDI video input;
Input Impedance: 75 Ohms nominal

CONTENT IN, RGBHV: (1) DB15HD female, RGB (VGA) input;
Formats: RGBHV, RGBS, RGsB;
Input Levels: 0.5 to 1.5 Vp-p with built-in DC restoration;
Input Impedance: 75 Ohms nominal;
Sync Detection: RGBHV, RGBS, RGsB;
Sync Input Level: 3 to 5 Vp-p;
Sync Input Impedance: 511 Ohms nominal

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CONTENT IN, HDMI: (1) 19-pin Type A HDMI female;
Signal Types: HDMI, DVI, DisplayPort Multimode[5]

LOOP OUT, RGBHV: (1) DB15HD female, buffered pass-thru from RGBHV input

HDMI OUT: (1) 19-pin Type A HDMI female;
Signal Types: HDMI, DVI[5]

MEMORY: (1) SD memory card slot; for local storage;
Supports SD and SDHC cards (16 GB SDHC card included)

USB: (2) USB Type A female (1 front, 1 rear); USB 2.0 host ports for connection of a USB hard drive[3]

LAN: (1) 8-wire RJ45, female;
10Base-T/100Base-TX/1000Base-T Ethernet port

12VDC 5.0A: (1) 2.5 x 5.5 mm DC power connector;
12 Volt DC power input; PW-1250DU power pack included

G: (1) 6-32 screw, chassis ground lug

COMPUTER (front): (1) USB Type B female, for future use

Display

Display Type: TFT active matrix color LCD
Size: 1.8 inch (45 mm) diagonal
Resolution: 220 x 176 pixels
Functions: Displays recording status, time counter, audio levels, setup parameters, and other details

Controls & Indicators

RESET: (1) recessed miniature pushbutton for hardware reset
Meter: (1) 10-segment LED bargraph, indicates Speech audio signal level
▲,▼,◀,▶: (4) pushbuttons, for 4-way LCD menu navigation and parameter adjustment
SELECT: (1) pushbutton, used to select or execute the highlighted menu item or value
HOME: (1) pushbutton, returns to the home menu
BACK: (1) pushbutton, steps menu back one level
REC, PAUSE, STOP: (3) transport style buttons with translucent button caps and LED backlighting for feedback, used to control the capture function
LAN (rear): (2) green LEDs, indicate Ethernet link status, speed, and activity

Power Requirements

Power Pack: 5 Amps @ 12 Volts DC;
100-240 Volts AC, 50/60 Hz power pack, model PW-1250DU included

Environmental

Temperature: 32° to 104°F (0° to 40°C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 69 BTU/hr

Enclosure

Chassis: Metal with matte black finish, vented sides, variable-speed fan-cooled
Faceplate: Metal, matte black finish with polycarbonate label overlay
Mounting: Freestanding or 1U 19-inch rack-mountable (adhesive feet and rack ears included)

Dimensions

Height: 1.91 in (49 mm);
1.70 in (44 mm) without feet
Width: 17.03 in (433 mm);
19.00 in (483 mm) with ears
Depth: 9.25 in (235 mm)

Weight

CAPTURE-HD: 4.1 lb (1.9 kg)
CAPTURE-HD-PRO: 4.2 lb (1.9 kg)

MODELS & ACCESSORIES

Available Models

CAPTURE-HD: Capture HD® High-Definition Capture Recorder
CAPTURE-HD-PRO: Capture HD® High-Definition Capture Recorder w/3G-SDI

Included Accessories

PW-1250DU: Universal Power Pack for CAPTURE-HD (Quantity 1 included)

Available Accessories

SW-FUSION-RV: Fusion RV® Remote Asset Management Software
CEN-FUSION-RVS-R320: Pre-configured Fusion RV® Server System
CAPTURE-TPMC-4SM: Touch Screen Controller for CAPTURE-HD
CAM-IFB-100: Camera for CAPTURE-HD
CAM-IPTZ-101: PTZ Camera for CAPTURE HD
MP-FS100_PAK: FreeSpeech® Single-Channel Wireless Mic System
MP-FS200_PAK: FreeSpeech® Dual-Channel Wireless Mic System
CBL Series: Crestron® Certified Interface Cables

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Notes:

1. Fusion RV software and hardware server(s) sold separately. Refer to the Crestron CaptureLiveHD Design Guide, Doc. #4552 for complete system requirements and design guidelines.
2. Item(s) sold separately.
3. Due to inconsistencies in the performance and quality of USB flash drives (a.k.a., "memory sticks" or "thumb drives"), their use with Capture HD is not recommended.
4. The bookmark feature requires integration with Fusion RV software (sold separately). Playback of bookmarked recordings is exclusively supported using Crestron Media Player. Crestron Media Player is a Web-based streaming media player that is included as part of the Media Services component of Fusion RV. Refer to the Crestron CaptureLiveHD spec sheet for additional information.
5. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. CBL-HD-DVI interface cables available separately.
6. SDI input capability is available on the CAPTURE-HD-PRO model only.
7. Affects analog audio outputs only.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

The specific patents that cover Crestron products are listed online at: patents.crestron.com.

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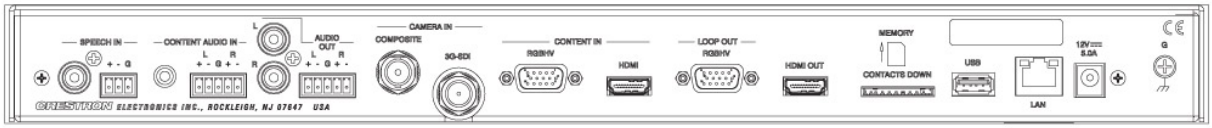

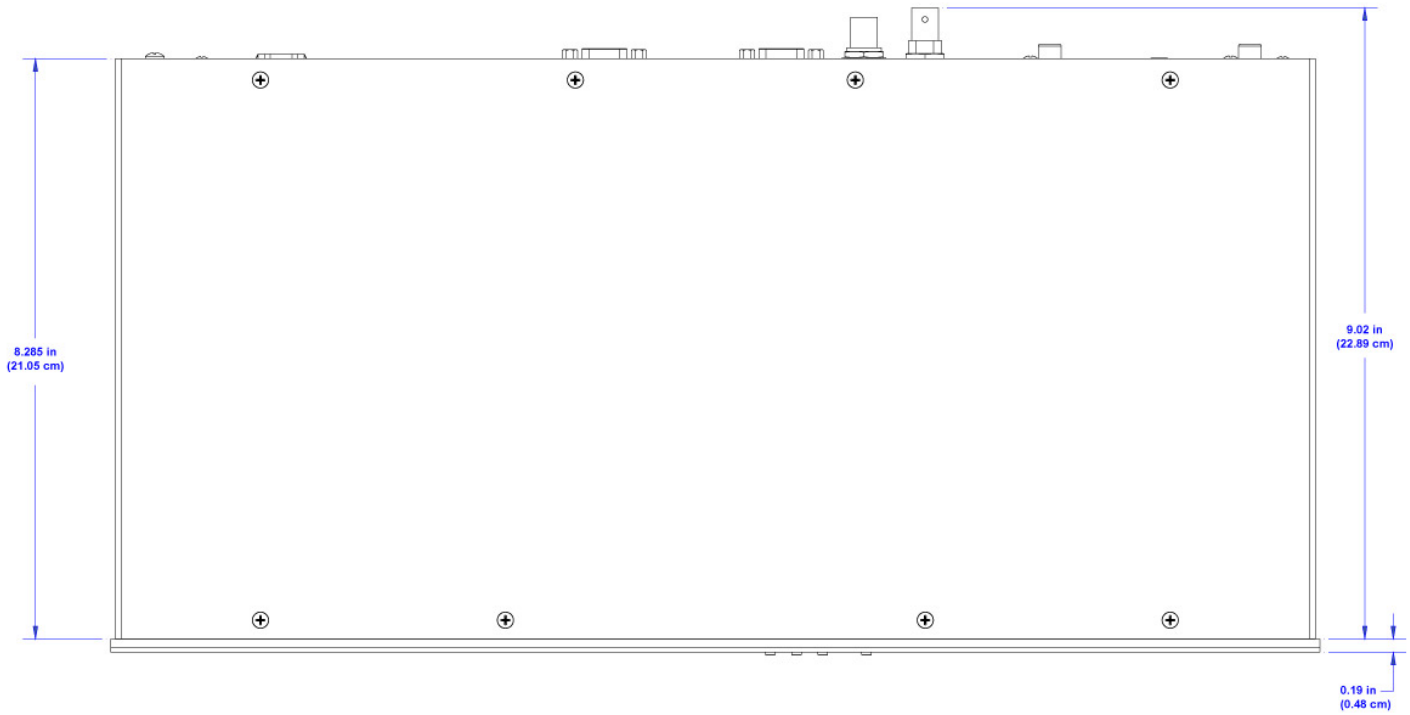

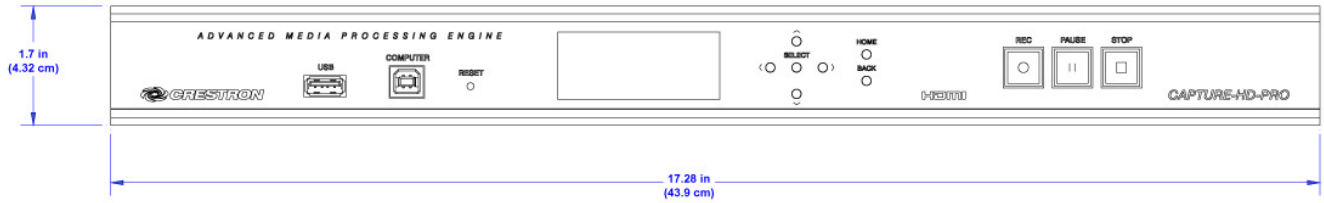

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